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ABSTRACT

With the objective of describing the use of the nurse's office or sick room in a rural elementary school, data was gathered from administrative records relating to sick room utilization and absenteeism. Monthly variations in use of the sick room, utilization by grade level, consistency of usage, complaints presented, and absenteeism were the main foci of data analysis. Results indicated that elementary students use the school sick room in a manner comparable to the way adults use the physician's office and clinic. Females make more visits than males. There is good evidence that many visits are unnecessary. Implications point to a need in health education to address the problem of improper use of health care systems. (DS)

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UTILIZATION PATTERNS OF A RURAL ELEMENTARY SCHOOL HEALTH - SICK - ROOM

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The three components of the school health program are health services, health education and a healthful environment. The nurse's office and school sick room are one of these three components. Despite the apparent importance of school health services, few studies reported in the literature objectively describe the role and function of the elementary school sick room and probably none describe sick room use among rural populations.

This paper describes the use of the nurse's office or sick room in a rural elementary school. The data were originally gathered on the assumption that sick room utilization data and data on absenteeism would be useful in the planning of health and health education programs and in improving the school's environment. From data routinely gathered for administrative and not educational purposes we hoped to learn more about the ways elementary school children defined illness and the ways they used "their" health care system (the nurse's office/sick room). In so doing, we also hoped to illustrate how already available data, which are often overlooked by school personnel, can help significantly in program planning and can often preclude unnecessary additional data gathering exercises.

Related Literature

Among the more significant studies related to this topic, Cauffman, et al.[1] have described the effects the social status of nurses have on the probabilities that students will receive appropriate and complete care following referral from the school health program. Stamler and Palmer[2] note that children using the school sick room are most likely having difficulties with parents or teachers and that sick room use may be a manifestation of dependency. Similarly, Van Arsdell, et al.[3] describe sick room use as sociological as well as medical "help-seeking". Both

Stamler and Palmer[2] and Van Arsdell, et al.[3] note that even in the elementary grades differing utilization patterns for males and females are emerging with females being the predominant users of the nurse's office. Kaplan, et al.[4] describe the efficacy of a comprehensive health care project in reducing school absenteeism among students in a low socioeconomic population and concludes that school attendance can be improved through improved health care services for students. In the course of describing the school nurse practitioner and her practice and comparing two alternatives for preparing school nurses, Hilmar and McAtee[5] describe the reasons for using health services in the Denver Public Schools and note that accidents and acute illnesses account for 58 percent of all contacts with the school nurses. McKevitt, et al.[6] present an extensive array of retrospective descriptive data on health room visits in the Galveston Independent School District elementary, middle and high schools. One of the most detailed analyses of health room visits was completed by Rogers and Reese[7] in 1965 but describes usage patterns only for students in the high school age range.

The basic literature search preceding this study revealed an interesting "quirk" in our burgeoning computer-based information retrieval systems. From the 320,000 entries in the ERIC files only two references were identified as dealing with the topics of "sick room use" and "absenteeism" and an array of associated terms. A search of the 615,000 entries in Dissertation Abstracts produced only one dissertation dealing with elementary school absenteeism and none dealing with sick room use. From the entire MEDLINE data base of more than 200 million entries, 262 references were identified of which 20 were germane to the topics of sick room use and absenteeism in an elementary school.

The lack of references identified in the educational reference system (ERIC) compared to the medical reference system (MEDLINE) is interesting. If educational

administrators and others usually responsible for school health programs seek information only from educational sources, they would conclude that almost nothing was available on these topics. Few school administrators have easy access to or are familiar with MEDLINE. Yet, in reality, this is a prime source for information critical to the administration of the health aspects of school administration.

The Role of the Sick Room

For the elementary school pupil the sick room is a place of some significance. It is the only place in the school the pupil can visit at will. It is a place where care is dispensed, help given, where rest and shelter from the turmoil of the educational process are available. In theory, at least, the sick room exists to enhance the school's educational objectives. The nurse cares for the sick, talks with the lonely and depressed, and bandages the injured, thus relieving the teacher of these responsibilities, allowing full devotion of his/her time and expertise to teaching functions.

The sick room serves an important role for the pupils in developing their concepts of illness and health. Visits to the sick room are often based on a pupil's individual assessment of his own health. How children define illness and how they use the sick room is a reflection of their developing understanding of illness behavior.[8,9]

Illness is a universally encountered phenomena, but illness and sick role behavior vary greatly. Illness and sick role behavior may relate directly to identifiable illness but they may also serve other functions such as avoidance of unpleasant tasks. Evidence suggests that younger children identify and describe illness in very general terms such as "feeling bad" or "not right." Illness later becomes associated with non-localized "pains" and still later with localized, identified signs and symptoms. This progression towards greater specificity

develops with age and experience.[10] The school sick room for the elementary pupil is an integral part of this development. It is, in fact, the child's health care system, and how they use it suggests its utility.

The Study School

The school providing the data in this study is in a rural mid-western town of approximately 700 residents and has a pupil census of 294 in grades 1-6, 147 males, 147 females.* The school serves a sizeable geographic area containing approximately equal proportions of farm families and business/professional families who have chosen to live outside a (15 miles) small urban area (150,000 population). Only students who were present for at least one complete semester of the 1977-78 school year were included in this study. For the first semester, 273 complete student records were analyzed and for the second semester, 269. The sick room was staffed by a health aide and supervised by an RN who spent one day a week at the school.**

Sick Room Use

Because this was the first year the sick room was staffed for all the hours of the school day,*** we expected an increased utilization rate as more students learned about and accepted the available services. A total of 1,090 student or teacher initiated visits were made by children to the sick room in the first semester (29% by boys, 71% by girls), and 1,795 visits were made in the second

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*Kindergarten children who attended 1/2 day sessions were not included in this study.

**In addition to providing nursing services, the health aide followed up on all absenteeisms, maintained all health records, and conducted all screening procedures.

***Previously a health aide was on duty for only three hours each day. At other times children requiring nursing services were cared for by the office staff.

semester (37% by boys, 63% by girls). Of the total 2,885 visits, 38 percent were in the first semester and 62 percent were in the second semester (Figure I). In addition, the health aide administered 1,047 doses of medications at the direction of parents and/or physicians. Figure IA shows that almost equal numbers of medications were administered each semester, but the percentage of medications given to boys increased from 35 percent of the total in Semester I to 50 percent of the total in Semester II. Total contacts between the nurse/health aide and students numbered 3,932, an average of 24 per day. Clearly this school has become a major source of "care" for its students.

The data presented in the remainder of this paper relate only to teacher or student initiated sick room visits and do not include sick room contact for the purpose of administering routine medications.

Not all students visited the sick room, but at all grade levels in the first semester a higher percentage of females made visits than did males (Figure II). In the second semester a higher percentage of females made visits than males in all grades except 2 and 5 (Figure III). The number of visits by individual students varied greatly and reached as many as 55 among the boys and 65 among the girls.

Utilization rates for female students who used the sick room were twice the male rate in Semester I. Female users averaged 6.1 visits and male users averaged 2.9 visits. Usage increased significantly in the second semester, both in number of visits and number of students making visits, male users making an average of 5.1 visits and female users making an average of 8.3 visits (Figure IV). This predominantly higher use rate by females concurs with the findings reported by Van Arsdell, et al.[3] and McKevitt, et al.[6]

Monthly Variations

Utilization rates by month are shown in Figure V. A steady increase by the boys is evident, but the reasons for the regular monthly variations are not immediately apparent. For the girls, usage peaked in January and declined irregularly through May. This suggests a variation related to climate, January usually being the coldest month, but the lack of a similar response among the boys tended not to support this notion.

Utilization by Grade Level

Differences in the average number of visits to the sick room by grade are difficult to explain. In all grades but the second the average number of visits to the sick room is higher for girls than boys (Figure VI). The level of second grade girls' use is especially low compared to girls in other grades. Sick room use by girls in the first and third grades is especially high compared to the other grades. It is possible that teachers have a "gate keeper" effect on children's use of the sick room during class time, but this does not easily explain low use by second grade girls or the high use by first and third grade girls. We would expect males and females to be approximately equally affected by a teacher "gate keeper" function, but that does not appear to be the case here.

Consistency of Usage

To compare sick room use for the two semesters of this study the approximate 10 percent of the pupils with the highest number of visits (9+) were classified the "high" group; the next approximate 35 percent with 4-8 sick room visits were classified the "moderate" group and the remainder were classified the "low" group. The approximate 13 percent of the pupils with no visits to the sick room were classified "none." Figure VII illustrates the relationship between those who made sick room visits from one semester to the next.

Pupils who were in the "high" group in the first semester tended to be in the "high" the second semester. The same tendency is noted for the "low" group. Of the 53 pupils who had no visits in Semester I, 79 percent were either in the "none" or "low" category in Semester II. Similarly, for the 46 pupils in the "high" category in Semester I, 76 percent were again in the "high" category in Semester II. The fact that use increased significantly in the second semester skewed the data slightly. This relationship was statistically significant (^{2}=118.4, df 9) beyond the one percent level. The relationships between semesters were similar for both boys and girls.

These data are surprisingly similar to earlier data gathered by Van Arsdell, et al.[3] in Rochester, New York. In a three month period Van Arsdell, et al.[3] reported that only 11 percent of the population made more than three visits to the nurse's office. In this study, conducted over a period three times as long, only 10 percent of the population made more than nine visits to the sick room.

Presenting Complaints

Students' presenting complaints were recorded by the nurse or health aide as soon as pupils arrived at the sick room. The array of complaints and suggested signs and symptoms was large and was later categorized under nine subheadings: wounds/trauma (usually resulting from accidents); headache; complaints related to the gastrointestinal system; skin problems; problems of the mouth, eyes and ears; complaints about the respiratory system; and general malaise. In many cases complaints included more than one category area, but in each case they were classified according to the major element. For example, a headache may include a sore throat but would be recorded as headache if it were identified as the "principal" complaint. Complaints were recorded in one category only. A rank ordering of complaints for the two semesters of the study is presented in Table I. These data are more interesting when considered by month (Figures VIIIA and B).

Clearly the number of wounds/trauma treated suggests the school is a dangerous place and the spring of the year is the most dangerous time. Thirty-four percent of all visits were for care of wounds/trauma of one type or another. The winter months, with the accompanying indoor activity, reduced the wound/trauma rates somewhat. Wounds/trauma are more frequent among boys than girls. Headaches also appeared to be somewhat seasonal. The peak headache time was in midwinter, in the month of January. Skin problems also reflect a seasonal variation, increasing the first cold month of the year of the study (November) and again in the coldest month (January). Chapped lips and cheeks were common and mild frostbite was occasionally noted. In the spring of the year skin problems included chapped lips, sunburns and ticks. There is no apparent explanation for the higher reporting of gastrointestinal problems in the second semester among girls.

Absenteeism As a Point of Reference

Sick room use and absence from the school are both motivated, to a large degree, by illness. Data presented here, however, do not show a significant relationship between sick room use and absenteeism. To further explore the relationship of these two variables, available data on school absenteeism were examined.

The number of absences for each pupil for the year of this study was determined by reviewing the official absence records of the school. A half day absence was the smallest unit recorded. Two measures were used: frequency, i.e., number of separate absence events, and duration, i.e., total number of days absent. These two measures roughly parallel each other, but distortions are caused by single absences of long duration. As in the earlier work of Rogers and Reese[7], we judged frequency of absence to be the most suitable measure for comparing pupils.

More females (87.4%) than males (84.6%) recorded at least one absence event during the study year (Figure IX). For those who were absent at least one half

day, the average duration of absence in both semesters was slightly longer for females (1.5 days) than for males (1.4 days) (Figure X) and the frequency of absence per semester was slightly higher for females (3.2) than for males (3.1) (Figure XI).

No attempt was made to examine specific reasons for absence beyond identifying absences to visit a physician or dentist and absence for non-health/medical related reasons. Only one semester's data were examined for these variables and it is interesting to note that of the 80 percent of recorded absences for illness, 12 percent were for routine visits to physicians/dentists. Twenty percent of the absences were for non-medical reasons, varying from babysitting to being unable to get to school because of snow covered county roads.

To compare absences for the two semesters of the year, the approximate 10 percent of the pupils with the highest number of absence events (6+) were designated the "high" absence group, the next approximate 35 percent with 3-5 absence events were designated the "moderate" group, and the remainder of the children having absences (38%) were called the "low" group. Pupils with no absence episodes (15%) were designated the "none" group. As shown in Figure XII, pupils in a given absence category for one semester tended to remain in that category for the second semester. For example, of the 42 pupils in the "none" category in the first semester, more than 83 percent were in the "low" or "none" category in the second semester. For the 28 students in the "high" category in the first semester, 38 percent were still in the "high" category for Semester II and 84 percent were in the "high" or "moderate" category. This relationship of absence frequencies from Semester I to Semester II was statistically significant (^{2}= 75.1, df 9) beyond the one percent level. This relationship of absences between Semesters I and II was similar for boys and girls when examined separately.

injuries increased when students spent recess times out of doors and increased significantly as the spring of the year advanced. Accidents and young people are probably inseparable, but data presented here suggest the need for a more detailed analysis to identify the causes of so many of the accidents. Can the play environment be improved to reduce the incidence of injuries? Is it useful to teach young people how to better use playground equipment?

No doubt improvements do occur in the school environment and the health education program, but often they do not occur until precipitated by a crisis of one type or another. If primary prevention is important, and it is, this paper suggests one source of easily accessible and understandable planning data, sick room records, that school officials can use to improve educational programs.

FIGURE I

PERCENTAGE OF STUDENTS MAKING AT LEAST ONE VISIT TO THE SICK ROOM - SEMESTER I

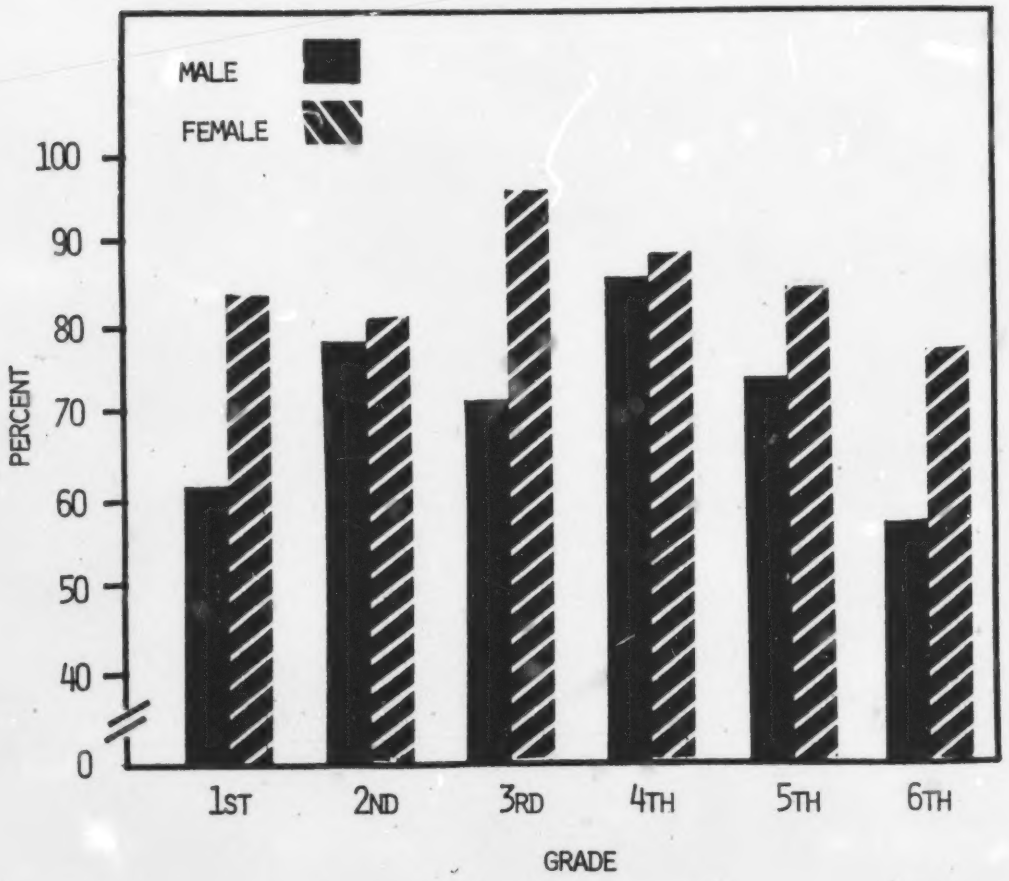
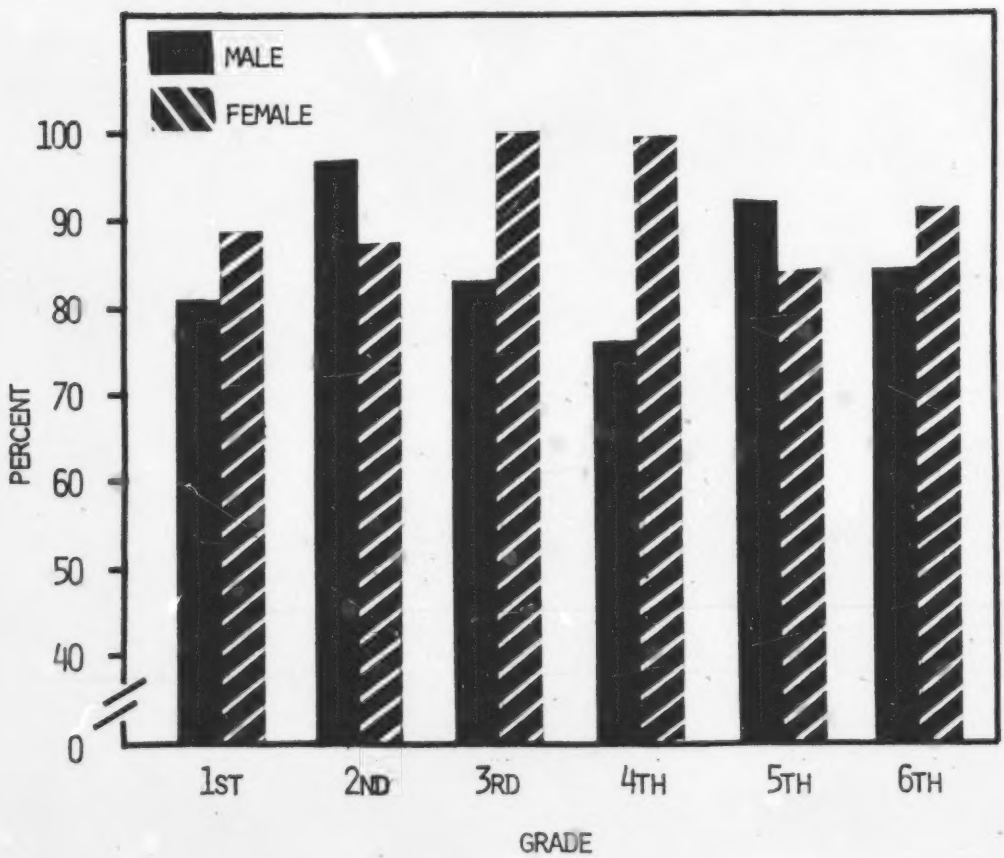


FIGURE II

PERCENTAGE OF STUDENTS MAKING AT LEAST
ONE VISIT TO THE SICK ROOM - SEMESTER II



Sick Room Use and Absenteeism

In order to compare sick room use with absenteeism for each of the two semesters of this study, absenteeism data were categorized as high, medium and low in the same manner as the sick room use data described earlier. Comparison of sick room utilization data and absence data for the same semester suggested no relationships of significance for either sex, either semester (Figure XIII and XIV). Absence from school and sick room use did not appear to be significantly related.

Summary and Implications

Elementary students use the school sick room in a manner comparable to the way adults use the physician's office and clinic. More females than males make visits and females make more visits than males.[11] There is also good evidence that many visits are unnecessary. If we are concerned that adults do not always use the health care system appropriately, and, if the pattern of elementary school use of "their" health care system already reflects adult usage patterns, then there exists an educational need to which health educators should give careful consideration. Can the school meet the "help-seeking" needs of children without having them misuse the sick room? Educational programs should be able to improve the use of the sick room, and later in life, the health care system by teaching young people enough about health and illness to give them the needed skills and knowledge to make more appropriate use of health services.

If illness conditions which stimulate visits to the sick room are seasonal in nature, do they suggest specific times for topics in the health education program? Yes, they do, but rarely are routinely gathered data on the children's conditions monitored by the health teacher as an adjunct to curriculum planning.

Wounds/trauma were the major cause of visits to the sick room for both boys and girls for both semesters of this study. The number of these largely accidental

FIGURE III

AVERAGE NUMBER OF DAILY SICK ROOM VISITS
PER PUPIL BY MONTH AND SEX

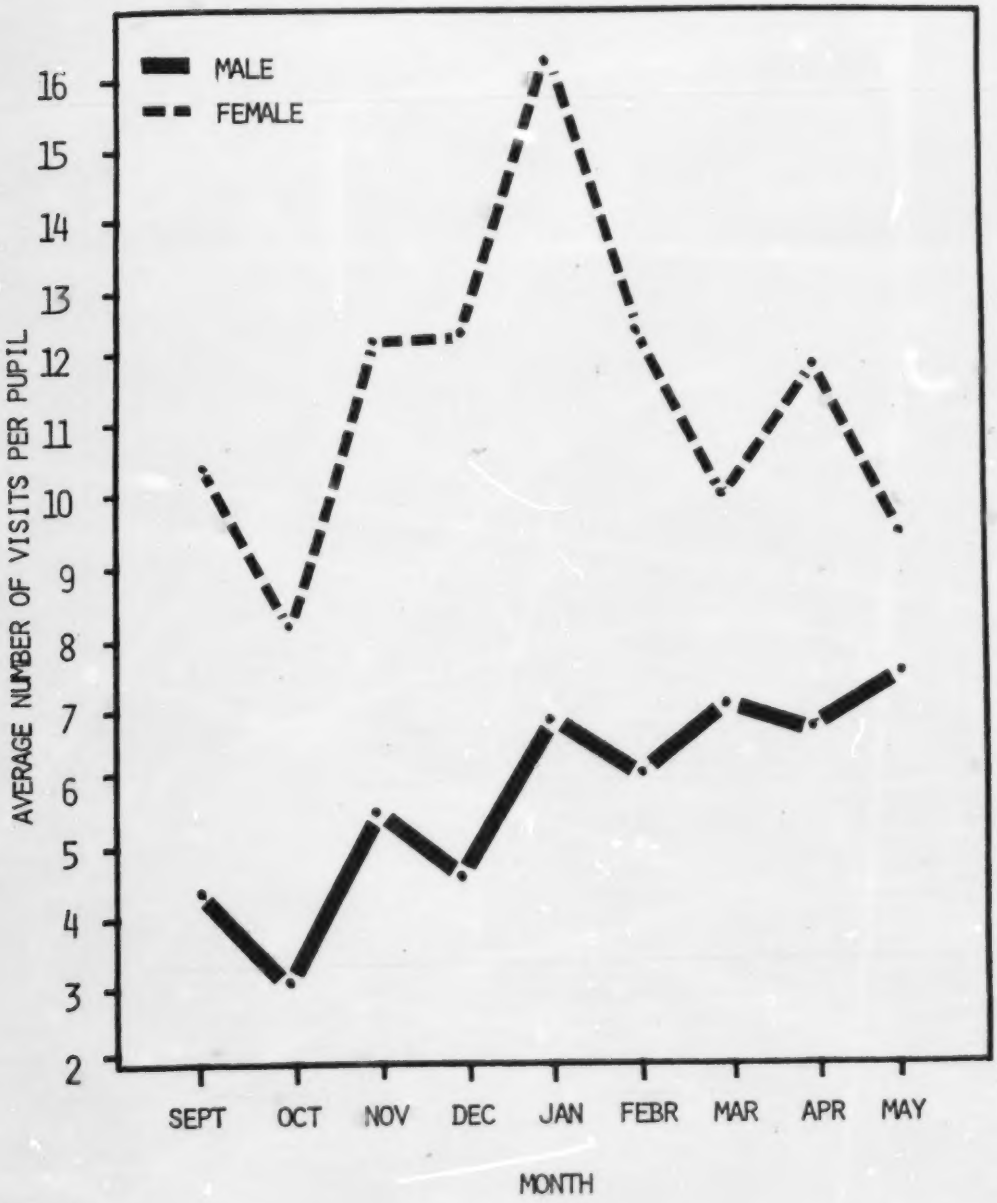


FIGURE IV

AVERAGE NUMBER OF SICK ROOM VISITS
PER PUPIL BY GRADE AND SEX

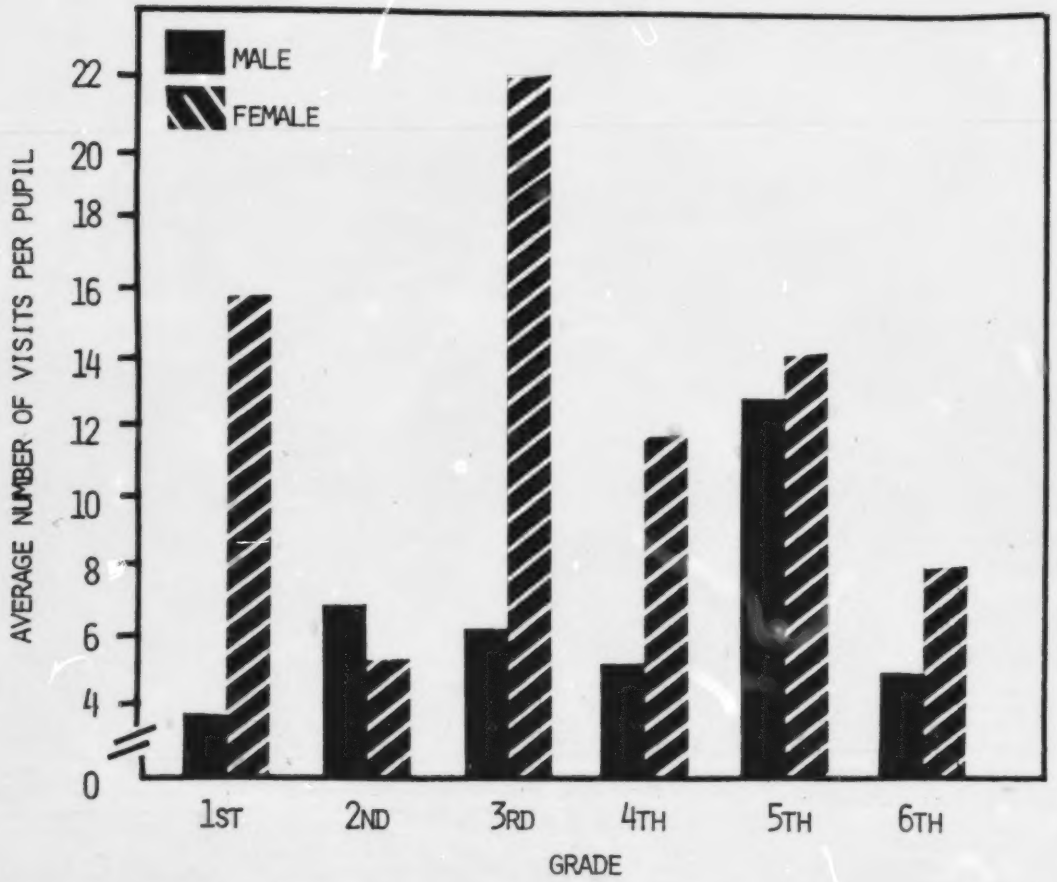


FIGURE V

SICK ROOM USE FOR TWO SUCCESSIVE SEMESTERS

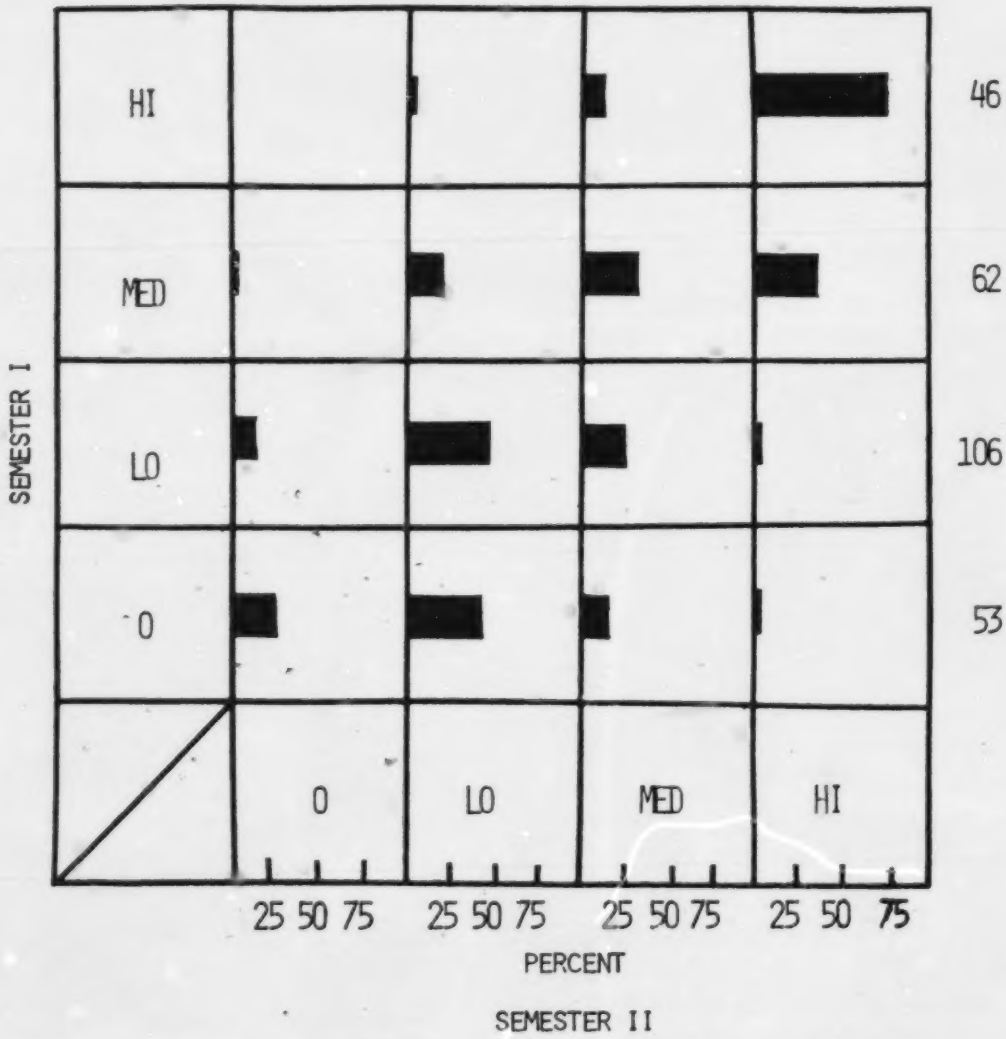


FIGURE VIA

MONTHLY VARIATIONS--FOUR MAJOR PRESENTING COMPLAINTS - MALES

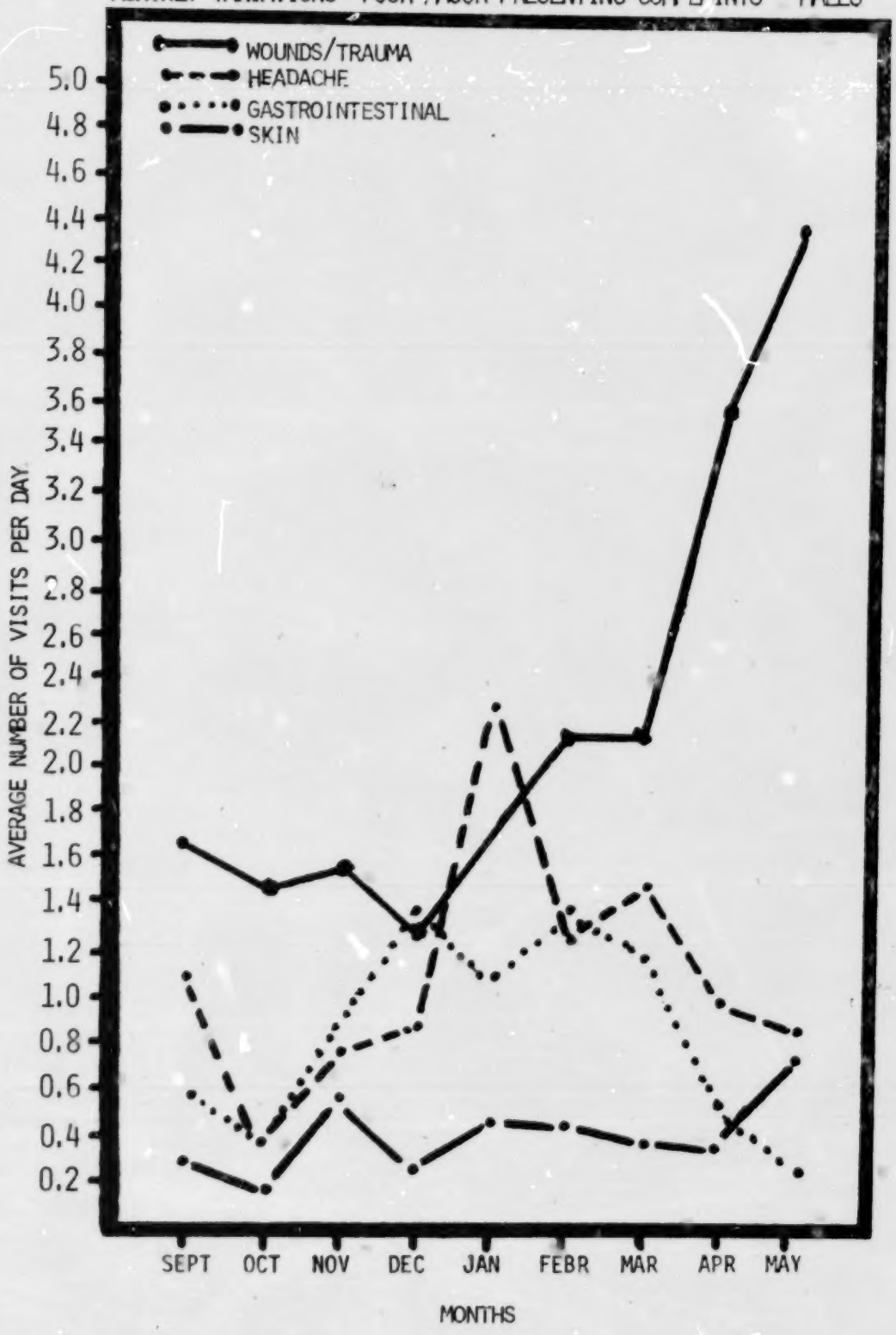


FIGURE VIB

MONTHLY VARIATIONS--FOUR MAJOR PRESENTING COMPLAINTS - FEMALES

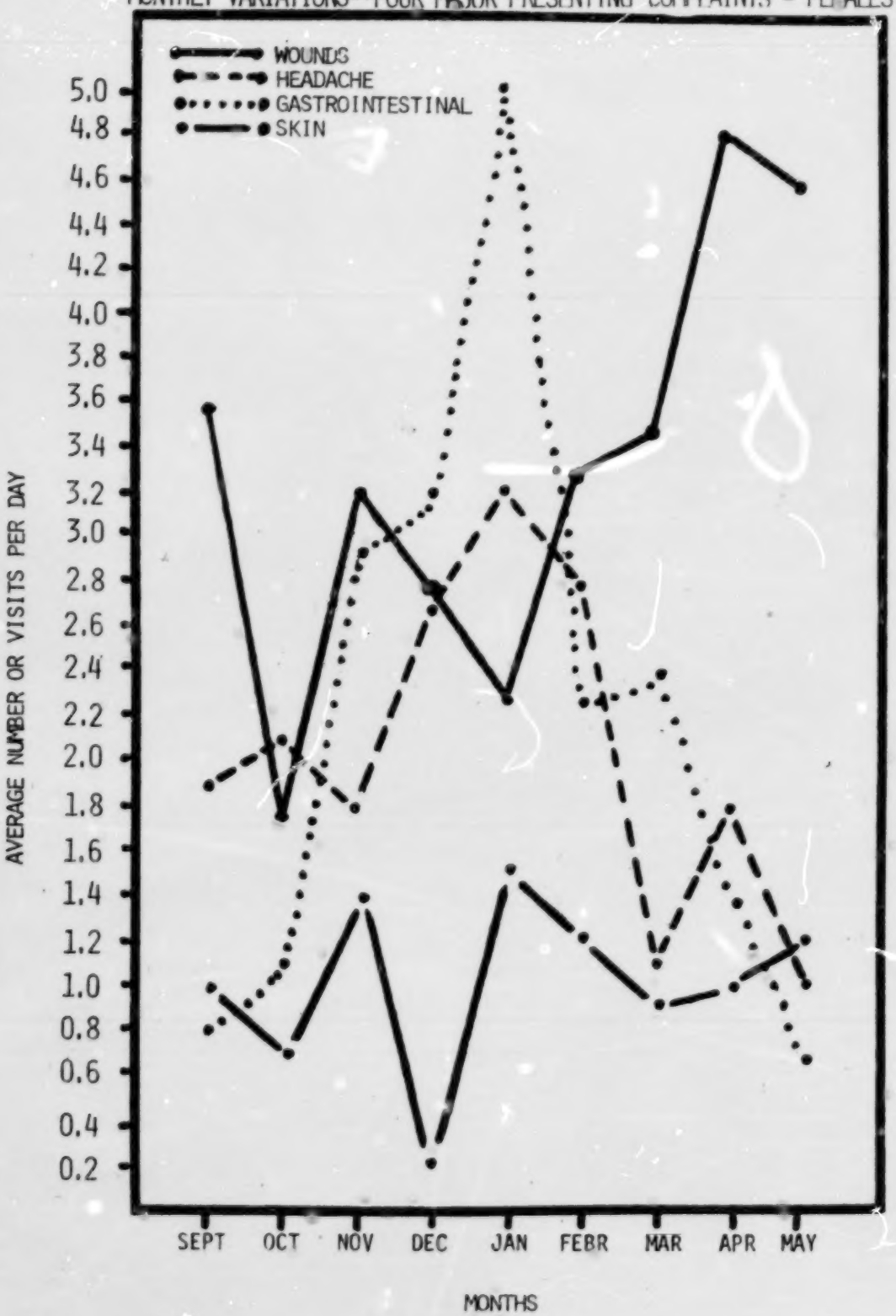


TABLE 1

PERCENTAGE RANK ORDER OF PRESENTING COMPLAINTS

SEMESTER I

BOYS	%	GIRLS	%
WOUNDS/TRAUMA	(38)	WOUNDS/TRAUMA	(30)
HEADACHE	(18)	HEADACHE	(18)
GASTROINTESTINAL	(16)	GASTROINTESTINAL	(18)
SKIN	(8)	SKIN	(10)
MOUTH	(6)	MOUTH	(10)
EYE	(5)	GENERAL MALAISE	(5)
GENERAL MALAISE	(4)	RESPIRATORY	(4)
RESPIRATORY	(3)	EAR	(3)
EAR	(3)	EYE	(2)

SEMESTER II

BOYS	%	GIRLS	%
WOUNDS/TRAUMA	(41)	WOUNDS/TRAUMA	(31)
HEADACHE	(21)	GASTROINTESTINAL	(20)
GASTROINTESTINAL	(13)	HEADACHE	(16)
SKIN	(8)	SKIN	(10)
GENERAL MALAISE	(5)	RESPIRATORY	(9)
RESPIRATORY	(5)	GENERAL MALAISE	(7)
EYE	(3)	MOUTH	(4)
MOUTH	(3)	EAR	(2)
EAR	(2)	EYE	(2)

FIGURE VII

ABSENTEEISM FOR TWO SUCCESSIVE SEMESTERS